

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

- 1 1. (Currently amended): In a storage system for storing data coupled to a
2 computer system having operating system software capable of executing a data recovery
3 program, a method for increasing the effectiveness of restoration of data after a failure
4 comprising:
5 creating a plurality of snapshots of the data stored in a particular storage system,
6 each snapshot constituting an image of the data stored in the storage system to thereby provide a
7 first data image;
8 for each snapshot:
9 performing a data recovery operation by applying the operating system
10 data recovery program to the snapshot;
11 if a result of the data recovery operation indicates a successful recovery,
12 then designating the snapshot as being a consistent snapshot;
13 if the result of data recovery operation indicates an un successful recovery,
14 then designating the snapshot as being an inconsistent snapshot;
15 receiving a request from a user; and
16 in response to receiving the request, presenting information for each snapshot
17 including whether said each snapshot is consistent or inconsistent.
18 ~~using the operating system data recovery program, recovering data associated~~
19 ~~with the computer system to thereby provide a second data image; and~~
20 ~~combining the first data image and the second data image to provide restored data~~
21 ~~after the failure.~~

2. (Canceled)

1 3. (Currently amended): A method as in claim 1 wherein the step of creating
2 ~~a snapshot~~ is performed under control of a host system.

1 4. (Currently amended): A method as in claim 1 wherein the step of creating
2 ~~a snapshot~~ is performed under control of the storage system.

5-6. (Canceled)

1 7. (Original): A method as in claim 1 wherein the steps of the method are
2 performed by a snapshot management host.

1 8. (Currently amended): In a storage system for storing data coupled to a
2 computer system having application software capable of executing a data recovery program for
3 that particular application, a method for increasing the effectiveness of restoration of data after a
4 failure comprising:

5 creating a plurality of snapshots of the data stored in a particular storage system,
6 each snapshot constituting an image of the data stored in the storage system to thereby provide a
7 first data image;

8 for each snapshot:

9 performing a data recovery operation by applying the data recovery
10 program of the application software to the snapshot;

11 if a result of the data recovery operation indicates a successful recovery,
12 then designating the snapshot as being a consistent snapshot;

13 if the result of data recovery operation indicates an un successful recovery,
14 then designating the snapshot as being an inconsistent snapshot;

15 receiving a request from a user; and

16 in response to receiving the request, presenting information for each snapshot
17 including whether said each snapshot is consistent or inconsistent.

18 ~~using the data recovery program in the application program, recovering data~~
19 ~~associated with the computer system to thereby provide a second data image; and~~

20 ~~combining the first data image and the second data image to provide restored data~~
21 ~~after the failure.~~

9. (Canceled)

1 10. (Currently amended): A method as in claim 8 wherein the ~~step of~~
2 ~~operating the application program data recovery operation~~ is carried out by an agent.

11. (Canceled)

1 12. (Currently amended): A method as in claim 8 wherein the step of creating
2 ~~a snapshot~~ is performed under control of a host system.

1 13. (Currently amended): A method as in claim 8 wherein the step of creating
2 ~~a snapshot~~ is performed under control of the storage system.

14-15. (Canceled)

1 16. (Original): A method as in claim 8 wherein the steps of the method are
2 performed by a snapshot management host.

1 17. (Currently amended): A storage system comprising:
2 a storage for storing data;
3 a scheduler for invoking creations of snapshots;
4 a recovery tool for restoring data from snapshots;
5 a manager coupled to the scheduler for processing creations of snapshots and
6 coupled to the recovery tool for controlling the restoring of data, each snapshot constituting an
7 image of the data stored in the storage system;
8 a storage agent coupled to the manager and to the storage for controlling the
9 storage to store and retrieve snapshots; and
10 at least one of an applications program ~~and or~~ a file system program coupled to
11 the manager to allow the manager to invoke one of the applications program ~~and or~~ the file

12 system program to cause it to perform a data restoration operation to restore data under control of
13 a feature of the one of the applications program and the file system program,

14 wherein if the data restoration operation was successful, then the snapshot is
15 designated as being a consistent snapshot,

16 wherein if the data restoration operation was unsuccessful, then the snapshot is
17 designated as being an inconsistent snapshot,

18 wherein status information of each snapshot including whether the snapshot is a
19 consistent snapshot or an inconsistent snapshot is presented to a user.

1 18. (Currently amended): A storage system as in claim 17 comprising a
2 storage subsystem coupled to a host, and wherein each of the recovery tool, the manager, the
3 storage agent and the at least one of the applications program ~~and~~or the file system program are
4 included in the host.

1 19. (Original): A storage system as in claim 18 wherein the scheduler is
2 included in the storage subsystem.

1 20. (Original): A storage subsystem adapted to be coupled to a host, the
2 storage subsystem for storing snapshot data indicative of a state of data in such storage
3 subsystem at a given time, and for storing other data related to an application program as of the
4 given time, whereby the snapshot data and the other data may be combined later to restore the
5 storage subsystem to a state indicative of its condition at the given time.

1 21. (Original): A storage subsystem adapted to be coupled to a host, the
2 storage subsystem for storing snapshot data indicative of a state of data in such storage
3 subsystem at a given time, and for storing other data related to an operating system program as of
4 the given time, whereby the snapshot data and the other data may be combined later to restore
5 the storage subsystem to a state indicative of its condition at the given time.